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# NASA TECH BRIEF



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## Concept to Standardize Space Vehicle Piggyback Experiment Modules

In the employment of larger, more powerful space vehicles such as Saturn V, primary mission demands will not, in some cases, exhaust the capabilities of the launch vehicle. There is, therefore, a residual capability which, if put to advantageous use, could perform an additional task which would otherwise require a lesser (though still quite expensive) launch vehicle for its implementation. A means is, therefore, sought to take advantage of this otherwise unused residual capability to bring to fruition lesser (than primary) missions which, while quite desirable, fall short of justifying a separate launch vehicle and its attendant expensive related services.

To this end, a study has been conducted to investigate the practicality and desirability of using spent launch vehicle stages and modules to support earth orbital operations and functions after successful completion of the primary mission. The stages can be utilized both with and without modification either prior to launch or after orbital establishment. Emphasis is placed primarily on determination of those uses that afford the greatest utility with minimum possibility of degradation to the primary mission. Criteria and a methodology for evaluation of each

concept are established and can be used in subsequent analyses to determine the practicality of other concepts. Cost estimates associated with the design and implementation of various concepts are delineated and may be used to establish resource requirements. Research required to support anticipated technological advances directly applicable to the candidate concepts has been identified.

### Note:

Copies of the above mentioned study may be requested from:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
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### Patent status:

No patent action is contemplated by NASA.

Source: W. H. Morita, W. Dowdy,  
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